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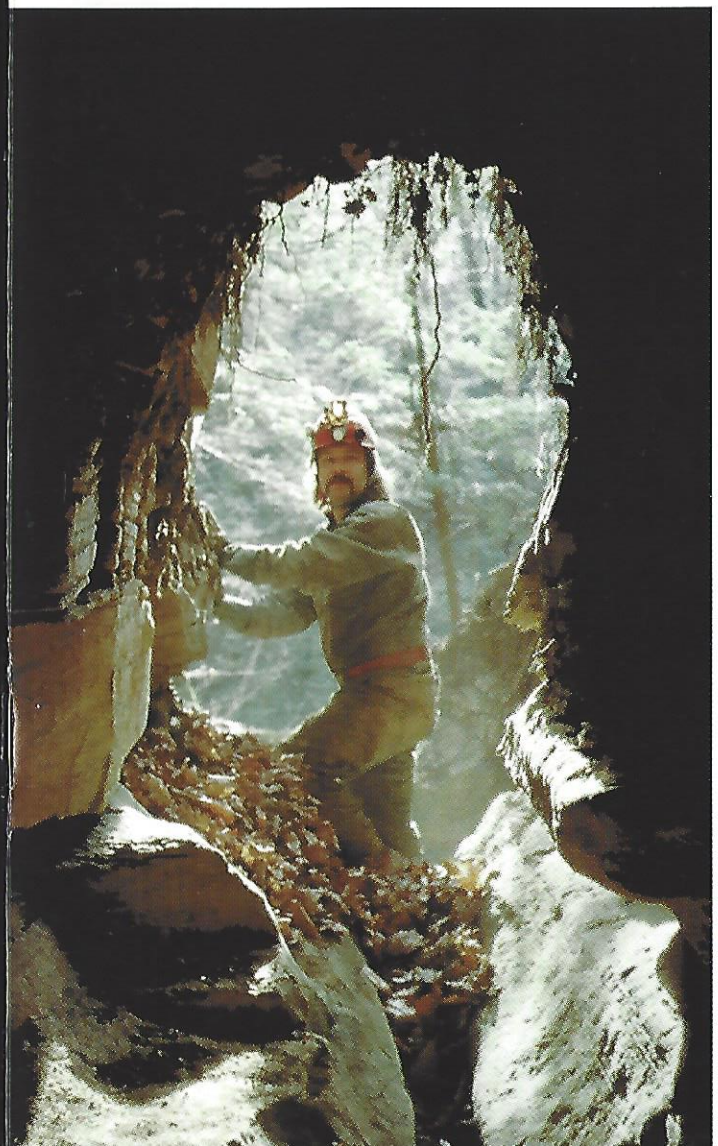
A GUIDE TO RESPONSIBLE CAVING



Compiled by:
Adrian (Ed)
Sira

National
Speleological
Society, Inc.

NATIONAL SPELEOLOGICAL SOCIETY
NSS

A GUIDE TO RESPONSIBLE CAVING

We explore caves for many reasons, but mainly for sport or science. The sport caver has been known as a spelunker, but most cave explorers prefer to be called cavers. Speleology is the scientific study of the cave environment. One who studies caves and cave environments is referred to as a speleologist.

This publication deals primarily with caves and the sport of caving. Cave exploring is becoming increasingly popular in all areas of the world. This increase in visits into the underground world is having a detrimental effect on caves and cave owner relations.

There are proper and safe caving methods. Included here is only an introduction to caves and caving, but one we hope will help you become a safe and responsible caver. Our common interest in caving, cave preservation, and cave conservation are the primary reasons for the National Speleological Society. Whether you are a beginner or an experienced caver, we hope the guidelines in this booklet will be a useful tool for remembering the basics which are so essential to help preserve the cave environment, to strengthen cave owner relations, and to make your visit to the cave a safe and enjoyable one.

Adrian (Ed) Sira
NSS 11904 FE

TAKE NOTHING BUT PICTURES
LEAVE NOTHING BUT FOOTPRINTS
KILL NOTHING BUT TIME

Acknowledgments

The second printing of this publication was made possible through a major donation from Pigeon Mountain Industries.

The cover shows Paul Woodell standing in the entrance of Jack Patrick Cave, New York. The prize winning photograph is by Joe Levinson.

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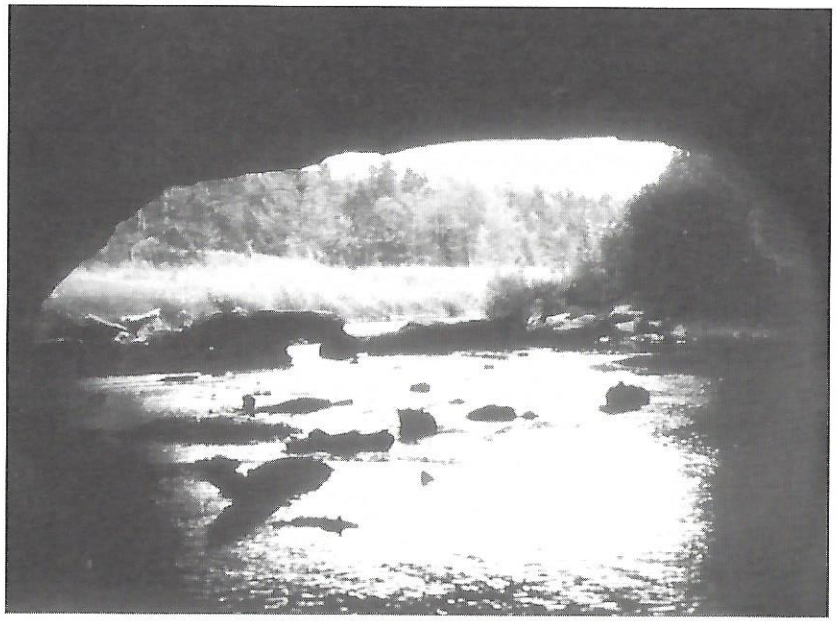
Mike Nardacci and Mack Sloan in Bowden Cave, West Virginia. Photo by Joe Levinson.

Caves

First, let's learn a little about caves and their environments. When you first enter a cave, you may have a strange feeling because you have come into an environment completely different from life on the surface. A cave is a naturally formed empty space under the earth's surface. Most caves are formed in soluble rock, usually limestone, dissolved by the action of slightly acidic water. Some cave systems have many connecting passages and may extend for miles. A great majority of caves are small and short; quite a few are damp. The dampness, an occasional bat, and unusual mineral formations may be unfamiliar to you. While some cave passages are small, others will have you in awe at their vastness.

Not every cave consists of walking passage—a continuous passage high enough to stand in. Numerous caves have walking passages combined with crevices filled with vigorous streams, tight fissures, crawlways, canyons, arches, bridges, waterfalls, pits, and domes.



The upstream entrance of Sinks of Gandy in West Virginia. Photo by Ed Sira.

The majority of caves have temperatures that are nearly constant the year round. That constant temperature is usually the average temperature of the surface above the cave. In addition to uniform temperature, some caves, especially in the eastern forests, possess high humidity, frequently with a relative humidity approaching 100 percent.

Caves seem eternal. Many have been around for hundreds of thousands of years. However, expanding civilization and technology have brought a new generation of threats: pollution, quarrying, and vandalism to name a few.

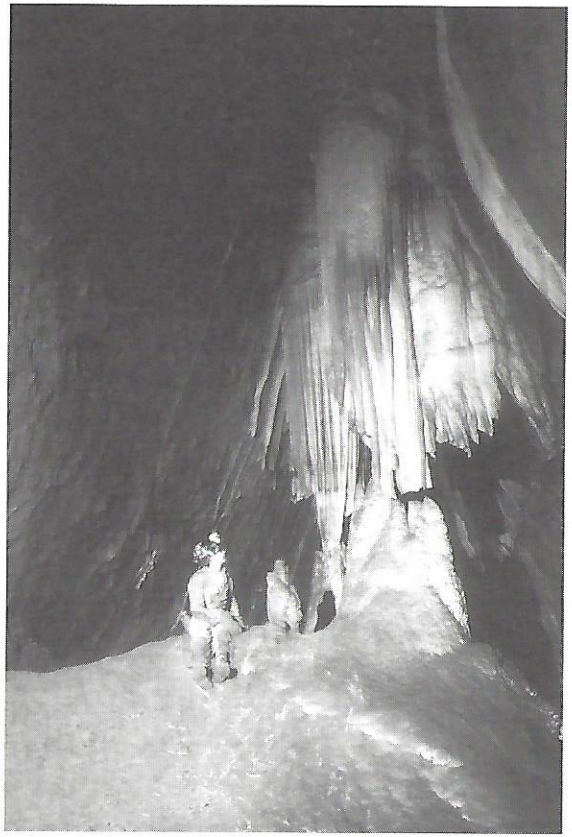
Some caves have active streams running through them and are subject to flash flooding during a rainstorm. This can trap or even drown cavers. Sudden flooding of cave passages has resulted in fatalities in the past. It is always wise to check the weather forecast before entering this kind of cave. If in doubt, visit some other cave.

Formations

Cave formations (called speleothems) are very delicate and fragile. Some common formations are called stalactites, stalagmites, flowstone, rimstone dams, and bacon rind. Others are helictites, gypsum flowers, gypsum needles, boxwork, columns, and soda straws. Formations grow very slowly. Some are no longer growing at all. Every cave is sensitive, whether commercial or wild. When visiting a cave, remember that formations damaged, even by accident, will not regenerate. Avoid damage to the cave and injury to yourself and you can really enjoy your visit to the underworld.

Cave Life

Many people visit caves without being aware that other life forms are sharing the cave environment with them. Cave life is not as abundant as that on the surface, so the



Chuck Nuski on a mudbank in Elkhorn Mountain Cave, West Virginia. Photo by Ed Sira.

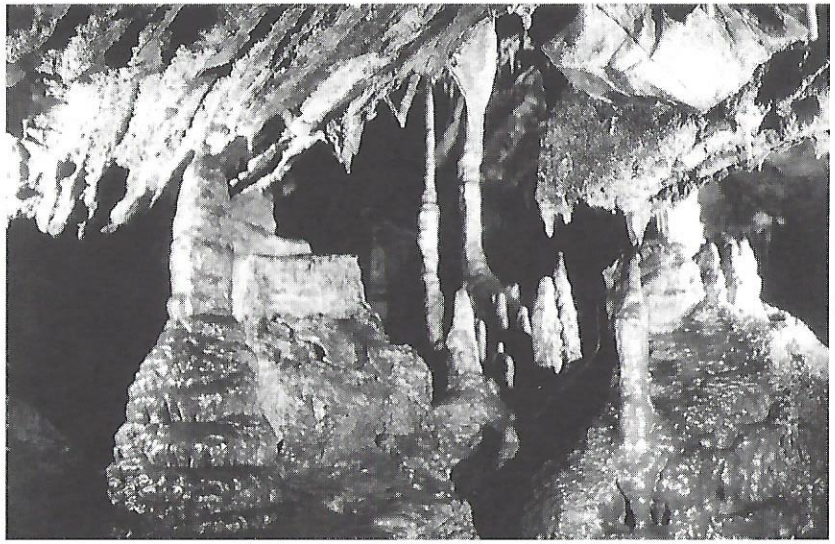
life in a cave is as delicate as the formations. Cave life can be placed into three categories commonly known as troglobite, troglophile, and trogloxene. The troglobite is a true cave dweller, an organism that never leaves the cave and never sees the light of day. A troglophile is an animal that can complete its life cycle inside or outside the cave. The trogloxene, on the other hand, will visit a cave for a period of time, but must always return to the outside environment to sustain its life.

Caves, because of their unusual environment, afford transitory or permanent sanctuary for an extensive range of living organisms, and the variety of critters in a cave is a lot narrower than in the surface surroundings. In addition to humans, cave life includes various types of insects,

spiders, salamanders, fish, crayfish, isopods, amphipods, snakes, harvestmen, birds, pack rats, and bats.

Many of the organisms that live their entire lives in the cave environment are colorless or blind. These residents, specially adapted to darkness, provide biologists with insight into biological processes such as evolution. Other species live only part of the time in caves. Because of the lack of food, many cave organisms are delicate and fragile, and occasionally rare or endangered. Therefore, utmost care should be taken not to disturb them or their environment. Some cave life, like the blind cave fish and the blind crayfish, never leave the cave and must live on the little food that is washed in from the surface.

Bats, on the other hand, will leave the cave each evening to feed, except when they are hibernating. Most North American bats are insect feeders, consuming nightly a quarter of their weight of such insects as flies, mosquitoes, and moths. In fact, bats are the only significant nighttime predators of insects. Many bats require the constant environment of caves for either hibernation or breeding, and cannot survive elsewhere.



New Cave in eastern Pennsylvania. Photo by Ed Sira.

Caves Need Our Protection

There are many other reasons caves need our protection. Caves continue to be an exciting source of new scientific knowledge. Caves supply us with a number of raw materials such as saltpeter, a constituent of gunpowder used extensively during the 1800s. Today large renewable deposits of bat droppings, called guano, constitute a highly prized fertilizer. Many rural communities depend on cave-supplied springs and rivers for their water supply. Caves are also the perfect environment for a family of mold-like bacteria which produce a wide variety of valuable antibiotics. Because of their stable environments, caves can preserve evidence of past human and animal activity. Valuable clues about the American Indian and the early American colonists are being found in caves every year.

Caving Courtesy and Land Owner Relations

Land owner–caver relations are an essential part of cave exploring. Many cave club meeting seem to bring news of another cave being closed due to inconsiderate actions on the part of cave visitors. The shame of this lack of respect for the property owner can be avoided if every visiting caver observes a few simple common-sense rules of courtesy. Here are a few important courtesy fundamentals that will help you gain access to most caves and keep them open for those who follow you.

Always get permission from the property owner. Most caves are located in rural areas. Do not assume this means they are open to any and all. Before entering any cave on private land, make sure you have the owner's permission. Often a local caver or grotto can help you make the proper contact. Write or call in advance, if possible. If you have to pass through a closed gate, close it after you pass

Steve Maynard among broomstick stalagmites in Deep Cave, Carlsbad Caverns National Park. Photo by Peter Jones.

through. Avoid walking across a planted field. It is a good idea to ask the owners how they would prefer you to travel to reach their cave. If you have to climb over a wire fence, it is best to climb near a substantial post to avoid sagging the wire.

One thing that has caused much alarm to livestock raisers is the careless caver who dumps spent carbide at the cave entrance or in the livestock meadows. This is a form of littering and places poison in easy reach of livestock and other wildlife. Carry a suitable container in which spent carbide and batteries can be placed and removed from the premises. Be sure to replace any logs or barriers that had been placed at the cave entrance to keep livestock from falling in.

An owner likes to know who is visiting his cave. Introduce yourself and the cavers with you. Spend a little time saying hello. You may have to persuade him that you are all competent, conscientious cavers. Be sure to thank him for his hospitality. Make it a point to see him again after having visited his cave unless it is late at night. Many farmers or ranchers go to bed early and will not appreciate being awakened. Let him know you are safely out and

inform him of anything unusual you may have found. Many owners have never been in their own caves, so copies of photos and cave maps are often appreciated. Leave the cave, the entrance, and the property cleaner than you found it. This may help when you want to visit this cave again. Be sure to be quiet late at night. The owner will not like listening to loud talk or car doors slamming at two in the morning.

If the cave is located on land controlled by the USDA Forest Service, the National Park Service, or a state agency, a permit may be required. Again, write in advance and allow time for a response. There are a few caves that can be entered without prior permission. Be sure you know which ones they are.

You may meet an owner who flatly says "NO." Do not argue with him. Simply say "thank you" and leave. Time and patience and a perhaps a Christmas card may change things. Oh yes, you will probably want to change clothes before and after your cave trip, so find a private, sheltered spot to do it. Owners have been offended by some cavers' lack of discretion.

Visiting a cave too often can irritate the owner, so be careful not to wear out your welcome. If several trips will be required to complete an exploration or mapping project, let the owner know right up front. Many cavers do maintenance or repair work for the owner in return for extended cave access.

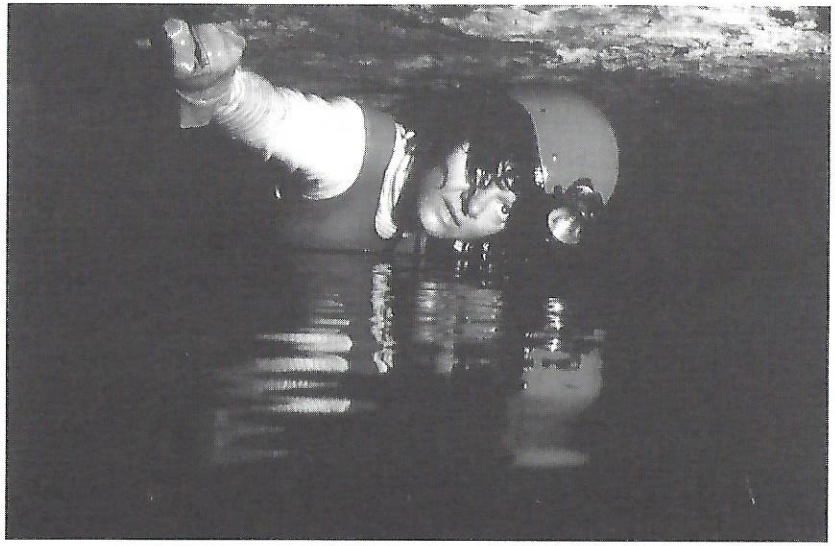
Safety

A reporter once asked me about the risk involved in caving. My response was, "If you're foolish enough to buy a two-dollar flashlight and go into a cave, it may be as dangerous as putting on a blindfold and walking across Times Square in New York. However, if you go caving properly equipped and with the proper attitude and training, it can be a safe, adventurous, and rewarding experience."

Caving is not necessarily a high-risk activity, but in certain situations and particular conditions it can be. The

level of risk involved in caving is, to a very large extent, related to the risk-taking behavior exhibited by the individual caver. It can also be affected by the wide variety of conditions that may be encountered in a cave. The bulk of caving accidents result from lack of training, lack of proper equipment, lack of preparation, or poor judgment. The Boy Scout motto "Be Prepared" applies here. Proper training, being properly equipped, and exercising good judgment will reduce the level of risk when caving.

Caving alone is foolhardy and dangerous. Caving is a noncompetitive team activity. It is an interdependent group of people moving together through an alien and potentially hostile environment. The actions of a single member can jeopardize the entire team. There should be a minimum of four cavers on a team. In the event of an accident, one can stay with the injured person and two can go for help. That way no one is caving alone. Teams larger than eight tend to be too slow and difficult to manage. A larger group of cavers can be divided into several teams to explore separate sections of a major cave system. Some groups like to have a designated trip leader,



Tina Shirk explores the fascinating passages of Kool Spring Cave, Indiana. Photo by Scott Fee.

although my experience has shown that most cavers will follow the lead of the caver most experienced in that sort of cave or the one who dealt with the landowner.

The team should move as a unit and only as fast as the slowest member, stopping periodically for a rest. Stay in voice contact with your teammates by not wandering off on your own. A fragmented team with poor communication is an invitation to trouble so use the buddy system. Remember, *no solo caving!* After negotiating a tricky climb or traverse, don't take off until you are sure the team member behind you has made it also. Team members should be aware of their companions' situations and be prepared to extend a helping hand.

Caving is extremely demanding physically. You should be in reasonably good shape. A person in poor condition will tire more quickly, slow the team, and ultimately shorten the trip. Know your limits and do not attempt trips beyond your capabilities. Beginners should start with shorter trips of two to four hours and work up to more challenging ones. If you have any doubts about the demands of a particular trip, talk to an experienced caver who knows the cave.

If you have a serious medical condition or a chronic disorder, it may be wise to consult a physician and consider his advice before caving. If you go caving, inform your caving companions about your condition before the trip in case of a problem.

Drugs and alcohol can be a real problem. In a cave exploring situation where you have to be mentally alert, drugs and alcohol are likely to be looked upon as something dangerous and unpopular with those whose trips you threaten to spoil.

Hazards

The intent here in discussing hazards is not to discourage you, but a little apprehension for a novice before a cave trip is healthy. An awareness of possible hazards will

help you avoid them. Caving as a whole has a better safety record than many active outdoor sports. Above all, respect the cave and exercise caution.

Falls are the most common type of caving accident. Slow down and watch where you are stepping. Running, jumping, and other fast moves are not recommended. A simple twisted ankle can require a major rescue effort to bring out an injured caver. Test handholds and footholds before committing yourself to your next move. Boots that supply ankle support and hard lug soles can help keep you from slipping and are great caving footwear. Some climbs require the use of a hand line or belay (a safety rope held by a companion), but free-climbing a rope (hand over hand) is foolish at best and could be fatal. It cannot be done safely and should be discouraged. Get vertical training from a competent instructor before doing any climbing in a cave.

Be aware of falling objects while caving. Avoid unstable breakdown and very steep rocky slopes. Standing under anyone doing climbing or other vertical work places you in a vulnerable position so be sure to stay off to the side of any climber above you. Secure all loose gear to prevent your accidentally dropping it on someone when climbing. It is good practice not to start moving until those who might be hit by something you dislodge have moved to a

Scott Fee examines a dryer passage in Kool Spring Cave, Indiana. Photo by David Black.

safe place. If you do dislodge even a small rock, drop your flashlight, or your cave pack, warn those below you by shouting "ROCK!" loudly and clearly.

As you go through the cave, you will encounter some crevices and very tight places. Avoid forcing yourself into places you cannot back out of or where your teammates will be unable to reach you. Descending a tight passage feet first is the best option, as you are better able to climb back out if you need to.

There is little excuse for getting lost but it happens. It's usually because a rule of safe caving practices was ignored. If it does happen, stay where you are and don't move around trying to find your way out. Conserve your light by turning it off. Turning your light on occasionally will help keep you calm and alert. Stamp your feet, pound a rock on the floor, and call out occasionally when you hear someone who may be searching for you. A better idea is to carry a whistle with you and use it to save wear on your voice box. You may need your voice to thank those who will spend hours trying to find you.

Always leave word with a reliable party as to what cave you will be visiting and your expected time of return. Leave a margin of extra time, as most trips take longer than originally planned. An unnecessary rescue results in bad publicity and doesn't sit well with the cave owner.

It is an embarrassing thing to be deep in a cave without any light. Any caver lost because of light failure should be embarrassed, to say the least. That caver is now stranded in total darkness until help arrives. Every caver should carry three sources of light. The primary source should be attached to the helmet. At least one of your secondary light sources should be sufficiently convenient and durable to be used to get you out of the cave. Spare parts, like batteries and a bulb for a flashlight, are required to produce a reliable source of light. Food and drink may be very important, depending on the number of hours you plan to spend in the cave.

The NSS Policy For Cave Conservation

The National Speleological Society believes: that caves have unique scientific, recreational, and scenic values; that these values are endangered by both carelessness and intentional vandalism; that these values, once gone, cannot be recovered; and that the responsibility for protecting caves must be assumed by those who study and enjoy them.

Accordingly, the intention of the Society is to work for the preservation of caves with a realistic policy supported by effective programs for: the encouragement of self-discipline among cavers; education and research concerning the cause and prevention of cave damage; and special projects, including cooperation with other groups similarly dedicated to the conservation of natural areas. Specifically: all contents of a cave—formations, life, and loose deposits—are significant for their enjoyment and interpretation. Therefore, caving parties should leave a cave as they find it. They should provide means for the removal of waste, limit markings to a few small and removable signs as are needed for surveys, and especially, exercise extreme care not to accidentally break or soil formations, disturb life forms or unnecessarily increase the number of disfiguring paths through an area.

Scientific collection is professional, selective, and minimal. The collecting of mineral or biological material for display purposes, including previously broken or dead specimens, is never justified, as it encourages others to collect and destroys the interest of the cave.

The Society encourages projects such as: establishing cave preserves, placing entrance gates where appropriate, opposing the sale of speleothems, supporting effective protective measures, cleaning and restoring over-used caves, cooperating with private cave owners by providing them knowledge about their cave and assisting them in protecting their cave and property from damage during cave visits, and encouraging commercial cave owners to

make use of their opportunity to aid the public in understanding caves and the importance of their conservation.

Where there is reason to believe that publication of cave locations will lead to vandalism before adequate protection can be established, the Society will oppose such publication.

It is the duty of every Society member to take personal responsibility for spreading a consciousness of the cave conservation problem to each potential user of caves. Without this, the beauty and value of our caves will not long remain with us.

Safe Caving Practices

Although the following list of safe caving practices is meant to help you, there is nothing—and make no mistake about it—*nothing* that will replace using good common sense. Some items listed below may have already been covered, but it wouldn't hurt to mention them again. We cannot cover every conceivable situation you may encounter while caving, and additional reading on the subject will benefit you.

- Never go caving alone (a minimum of four people on a team).
- Wear a good-quality hard hat with a chin strap and the primary light source attached.
- Carry three sources of light (should one source fail).
- Always leave word as to which cave you will be visiting and your expected time of return, allowing a few hours for any unexpected contingencies.
- Follow the lead of the more experienced caver or the one who knows the cave well.
- If all your lights fail, sit down and wait on the spot for help to come.
- Avoid jumping. Cave floors are seldom level, and a short jump may result in an injury.
- Practice ropework (vertical caving) under the guidance of an expert before doing any vertical caving.
- Caving is extremely tiring: know your limit, rest frequently, watch for fatigue in others.
- People with chronic medical conditions need to take that into consideration when deciding to go caving.

- Carry a small first aid kit. A large garbage bag or poncho will make a good heat tent using the heat from one candle or carbide lamp.
- If an immobilizing injury occurs, treat for shock (keep the injured caver warm) and contact the local cave rescue organization.
- Sitting still can cause shivering after a period of time, the first symptom of hypothermia. Get moving, initiate activity.
- The slowest caver sets the pace. Go only as fast as you can be followed, and check on the caver behind you.
- If lost in a cave, panic is your worst enemy. Remain calm, conserve your light, and if you followed the rule about leaving word, you have little to worry about.

Suggested Caving Equipment

In various parts of the country, the equipment needed for a safe and comfortable cave trip may differ from what we have listed here. It would be wise to check with a caver in the area where you want to go caving to find out if any equipment, other than that listed below, or your usual equipment stash, may be needed.

- **Helmet:** A hard hat equipped with a chin strap and mounted with your primary source of light is required. The hard hat should be of good quality and meet UIAA* standards.
- **Back-up lights:** At least two sources of backup light with spare parts are mandatory for safe caving, carried so as not to fall and break. With a back-up lighting source, compactness and dependability are more of a concern than intensity. Water resistant flashlights (Mini-Maglites®) are a popular choice.
- **Footwear:** Shoes should be sturdy hiking or work boots with non-slip, lug soles made high enough to provide ankle support. They'll probably get wet, so expensive boots aren't called for.
- **Clothing:** The temperature inside caves runs from the 40s up north to the 60s in Florida, so dress accordingly. One-piece coveralls add an extra layer for warmth over your other clothes and are a great advantage.

  Changing into clean clothes is required after exiting the cave, especially if you are riding in someone else's car. Remember to be discreet. By the way, your cave clothes will never be the same again, so use old clothing.
- **Gloves:** The protection of gloves will keep your hands clean and help minimize the number of cuts and scrapes you may get on your hands.

- **Cave pack:** A fanny pack of substantial strength or an old military pack is helpful in carrying needed extra equipment (water, food, flashlights, batteries, carbide, plastic bags, and the like).
- **Large plastic trash bag:** A large trash bag not only can be used for emergency warmth but is ideal to carry dirty cave clothes home. Carry it with you in your cave pack.
- **Kneepads:** Pads are optional, but they surely will make your knees happy.
- **Food:** Carry high-energy food sufficient for the length of the trip. It is wise to carry some extra in case the trip takes longer than expected or in the unlikely event that you become lost.

* UIAA—Union of International Alpine Associations. An organization that sets standards for climbing and mountaineering.

Suggested Additional Reading

It is not possible, nor was it our intent, to put everything there is to know about caves and caving in this booklet. We do suggest the following additional reading. These books are available from The National Speleological Society bookstore. Contact them at the NSS Bookstore, 2813 Cave Ave, Huntsville AL 35810-4431. Telephone: (256) 852-1300, E-mail: nss@caves.org, World Wide Web: http://www.caves.org

Caving Basics, Third Edition — G. Thomas Rea, Editor

Adventure of Caving — David R. McClurg

Caving In America — The story of the National Speleological Society — Paul H. Damon, Editor

Lechuguilla, Jewel of The Underground — Michael Ray Taylor, Editor

On Rope — North American Vertical Rope Techniques — Bruce Smith and Allen Padgett

On Station — A comprehensive handbook on surveying and mapping caves —George R. Dasher

American Caves and Caving — William R. Halliday, MD

America's Neighborhood Bats — Merlin Tuttle

Images Below — A Manual of Underground and Flash Photography — Chris Howes

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